

High Efficiency Feedhorn-Coupled TES-based Detectors for CMB Polarization Measurements

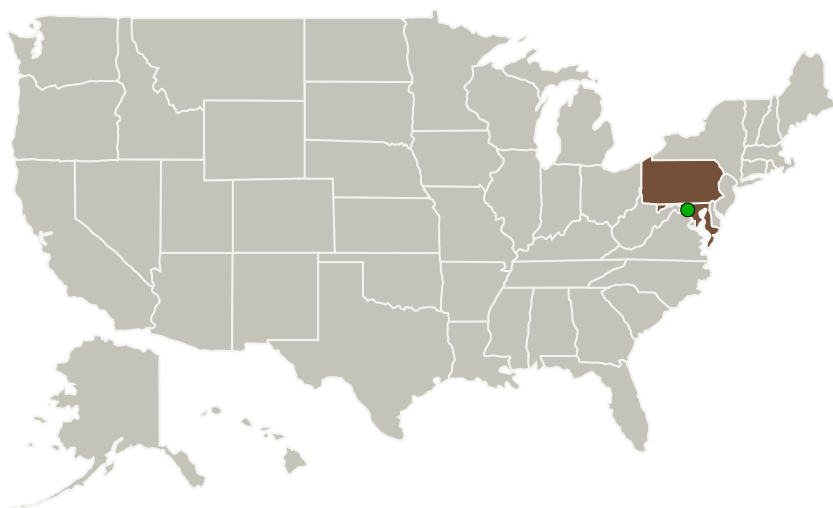
Completed Technology Project (2015 - 2017)



Project Introduction

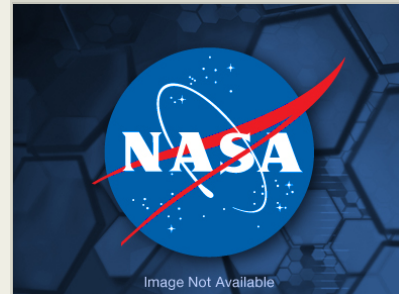
The development of large format focal planes of sensitive detectors that have excellent systematic control is essential for future space-borne measurements of the cosmic microwave background that will search for evidence of inflation. We have developed and demonstrated detectors that utilize a unique combination of a highly symmetric electromagnetic design and a single-crystal silicon material system that results in high transmission efficiency, the required sensitivity, and low cross-polarization response. We propose a two year technology maturation effort that will focus on implementing these detectors in large focal planes that are compatible with the space environment.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Pennsylvania



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Organizational Responsibility

Responsible Mission Directorate:

Science Mission Directorate (SMD)

Responsible Program:

Strategic Astrophysics Technology

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Project Management

Program Director:

Mario R Perez

Program Manager:

Mario R Perez

Principal Investigator:

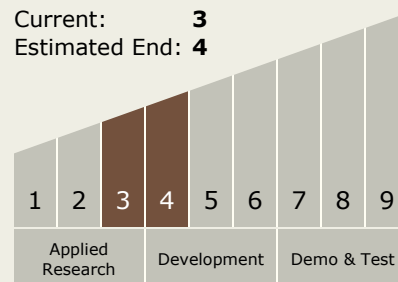
Edward J Wollack

Co-Investigators:

David T Chuss
Karwan Rostem
David T Leisawitz
Samuel H Moseley
Tobias Marriage
Kevin L Denis
Charles L Bennett
Kongpop U-yen

Technology Maturity (TRL)

Start: 3
Current: 3
Estimated End: 4



Technology Areas

Primary:

- TX08 Sensors and Instruments

Continued on following page.

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Technology Areas (cont.)

- └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.1 Detectors and Focal Planes

Target Destination Outside the Solar System